VI

STERILITY IN THE MALE

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SINCE gonorrhœa is the commonest cause of sterility in the male, the subject is one in which those practising in venereal disease must be specially interested. For this reason no apology need be offered in publishing this paper in a journal devoted to the study of venereal disease.

Fifty years ago, when the question of childlessness in marriage was considered, a search for the cause was invariably directed to the female only. Fortunately the responsibility of the male is now more fully recognised, although even at the present day many women are subjected to operation without any proof having been previously obtained that their husbands are not at fault. Enlightened as the profession has become on the subject, it is still not universally recognised that the treatment of a barren marriage should begin with an examination of the male and not with a curettage of the female.

It is, of course, impossible to assess accurately the responsibility of the male in a childless marriage. In 253 unfertile unions Dr. J. Sturdivant Read found 167 instances of impaired fertility of the male. This, of course, does not necessarily mean that these 167 husbands were entirely responsible for the absence of children, for in some cases their deficiency was only slight. Of thirty-two husbands referred to me by gynæcologists on account of absence of children, thirteen were normal in all respects, and nineteen showed varying degrees of impaired fertility ranging from complete azoospermia to a marked degree of oligospermia. These figures, insufficient as they may be, are at any rate an indication of the importance in an unfertile union of the examination of the male.

As has already been pointed out, many of the husbands included in the above statistics suffered from a sterility that was relative rather than complete. Lody estimated that in a single ejaculation some 200 million spermatozoa are emptied into the vagina, of which only one will, in

favourable circumstances, unite with the descending ovum. Should this number be reduced, or should the vigour of the spermatozoa be impaired, the chances of successful impregnation are correspondingly lessened and fertility diminished. By an investigation of a specimen of semen it is possible to form some rough estimate of the number, the integrity and the vigour of the spermatozoa present. It must, however, always be borne in mind that the microscope and the test tube only reveal gross abnormalities, and that it is probable that some of the males whom we pass as normal are, nevertheless, responsible for the childlessness of their wives. It is, for example, possible that some cases of repeated miscarriage are due to impregnation of the ovum by an imperfect or unhealthy spermatozoon, although previous microscopic examination of the semen may have failed to discover any abnormality. But even if we confine our attention to abnormalities sufficiently gross to be detected by the microscope or the test tube relative sterility will be found to be very common amongst males.

Sterility may be due to a failure on the part of the testes to produce spermatozoa or to a mechanical blockage somewhere in the genital tract which prevents their egress. It is to the latter class that cases of sterility due to gonorrhœa usually belong. In these cases of blockage the obstruction may be temporary or permanent. Unfortunately permanent blockage is by far the commoner. The most frequent situation for an obstruction is at the lower pole of the epididymis. Less commonly it occurs in the vas deferens or in the neighbourhood of the ejaculatory ducts. Since the obstruction is usually in the epididymis, it is obvious that in those cases that are due to gonorrhœa a past history of epididymitis will usually be found. In this connection Benzer's observations on the after-history of German soldiers, who had suffered from gonorrhœa, and had subsequently married, are of special interest. He found that of those men who had escaped epididymitis altogether 10·5 per cent. remained childless at the end of three years. Of those who had had unilateral epididymitis 23·4 per cent. were childless, and of the bilateral cases 41·7 per cent. The risk of sterility in cases of bilateral epididymitis is, therefore, very considerable. Unfortunately but little can be done, once an epididymitis has occurred, to diminish this risk,

although figures coming from America support the view that subsequent azoospermia is less frequent in those cases in which epididymotomy has been carried out in the acute stage than those in which palliative measures are alone adopted. Our efforts must be mainly directed towards its prevention. The incidence of gonococcal epididymitis at different clinics is subject to great variations, and these variations depend to a great extent on methods of treatment. Rest during the acute stage of gonorrhœa and gentleness in instrumentation and irrigation are the most important points in reducing the incidence of epididymitis. It is in the adoption of these precautions that the chief hope of preventing sterility lies. As has already been said, once a blockage has occurred little can be done to remedy it. Martin suggested excision of the obstruction and anastomosis of the vas with the epididymis. For this procedure he has claimed a few successes, but in the experience of English and German surgeons alike the operation has proved a dismal failure. Although potency may be restored for a time the vas invariably becomes blocked again. Personally I have now abandoned the operation as useless.

Sterility is less commonly caused by a tuberculous than a gonococcal epididymitis. When a case of tuberculous epididymitis is sterile it is usually on account of associated disease of the prostate and vesicles. Vesiculitis and prostatitis, quite apart from mechanical obstruction in the ejaculatory ducts, impair although they do not apparently prevent fertility. It was formerly said that in the presence of pus spermatozoa become motionless. This, however, is not true, for I frequently find active movement in semen containing a large number of pus cells. Experiments on rats have, moreover, shown that the secretion of the prostate and vesicles, while contributing to fertility, are not absolutely vital, so that we must consider vesiculitis and prostatitis a cause of impaired fertility rather than of complete sterility. Mr. Jocelyn Swann has recorded a case in which removal of a tuberculous testicle resulted in children in a marriage that had previously been barren. This was undoubtedly due to the improvement in the lesions of the vesicles and prostate that generally follows removal of a tuberculous testicle.

Should an examination prove that the blockage is in the ejaculatory ducts the chances of successful surgical

interference are, of course, far greater than in those cases in which the obstruction is in the vas or the epididymis. The method of diagnosis in a case of mechanical blockage is of importance. Should fibrous nodules be felt in both epididymes of a patient suffering from azoospermia the diagnosis is, of course, evident. In cases of doubt, however, the testes may be punctured with a fine hypodermic needle and a small quantity of testicular juice extracted. If spermatozoa are found the diagnosis is clinched. If spermatozoa are absent the case belongs to the second category. The site of obstruction is determined by palpation, by posterior urethroscopy, and by the injection of indigo-carmine or other coloured fluids along the vas.

In the second class of case sterility is due to failure on the part of the testes to produce healthy spermatozoa. This failure may be partial, when a condition of oligozoospermia results, or complete (azoospermia), in which no spermatozoa whatever are found in the semen. Oligozoospermia is a very common condition and, of course, in old age may be regarded as physiological. At the same time it must be remembered that age counts for far less as a cause of impaired fertility in the male than it does in the female. Microscopic sections of the testes of men over sixty show great variations in respect to spermatogenesis. It may, however, be taken as a rule that from fifty-five onwards there is diminution in spermatogenesis, although exceptional cases occur, as in a nonogenarian whom I recently had an opportunity of examining, in whom active spermatogenesis was present.

Dr. J. S. Read, already quoted earlier in this article, found 108 cases of oligospermia amongst 253 husbands examined for childless marriages. The causes of this condition are numerous. It may be physiological, as in old age, or as a result of excessive coitus. Generally, it indicates a pathological condition of the testis, and, as would be expected, occurs frequently as the result of diseases affecting the body of the testis, such as syphilis or mumps. In the retained testis spermatogenesis is practically always absent, although rare cases have been cited of fertility in a cryptorchid. The explanation of the sterility of these cases is probably the fact that a testicle that is arrested in its descent from the abdomen is also arrested in its development. At the

same time experiments in rabbits have shown that a normal testicle when replaced in the abdomen undergoes regression. In addition to local inflammation and local injury there are certain constitutional causes which may be responsible for a deficient excretion of spermatozoa. Any prolonged impairment of general health is likely to result in diminished activity of the spermatic tubules. So, also, are certain deficiencies in diet. When rats are fed on a diet poor in fats, phosphorus and vitamines, the testicles regress and spermatogenesis ceases. Even a change in the habit and mode of living of an animal reacts on its testes, a fact that is exemplified by the well-known sterility of most menagerie animals. In the same way substitution of a healthy outdoor life for a sedentary one will result in increase in spermatogenesis in a human being.

Drugs, so far as I know, have but little effect on spermatogenesis, although it is a common belief amongst Anglo-Indians that taking quinine over long periods causes sterility. Alcohol and tobacco may have an indirect effect in diminishing sexual desire when taken in excess. The relation of heat to spermatogenesis is interesting. If the testes of rabbits be exposed to heat, even of a moderate degree, spermatogenesis ceases. The temperature of the scrotum is one or two degrees below that of the abdomen, and it has been suggested that the emigration of the testis to the scrotum is related to this fact. Certainly the scrotum is admirably constructed as a heat-regulating device, and there is something to be said for the theory.

The influence of the central nervous system on the activity of the tubules is also of importance. Grave degenerative lesions, like dementia præcox, as Sir Frederick Mott has shown, are invariably associated with degenerative changes in the testes and ovaries. It is probable, also, that other organic lesions of the cord and brain are not without effect on the testis. It is also possible that functional troubles influence spermatogenesis. I have had two patients, both of them young and apparently healthy, in whom repeated examinations of the semen failed to reveal spermatozoa. There was no previous history of venereal disease or of other illnesses likely to produce azoospermia, and the only point they had in common was that they had both suffered from shell shock

and neurasthenia. It has been noted by some authorities that after a long abstinence from coitus there may be a diminution or disappearance of spermatozoa from the semen. This, however, could not have been the cause in the above-cited patients, both of whom were married men.

Little has been said in the foregoing remarks concerning treatment. The treatment of cases of sterility due to mechanical blockage is, of course, a surgical problem and, as has been already pointed out, one that has not yet found a satisfactory solution. The remedying of deficiencies in spermatogenesis consists in attention to numerous details in the patient's life, in the adoption of measures to improve his general condition, in the substitution where possible of a healthy outdoor existence for a sedentary one, and in the selection of a diet rich in vitamins and fats. Whether more can be done, in those cases in which there is reason to suspect the functioning of the endocrine system, by the use of extracts, is still doubtful, but in suitable cases organo-therapy should be given a trial. The whole subject teems with interest, but, unfortunately, it is beyond the scope of the present paper.